

**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION**

CUMMINS-ALLISON CORP., an)
Indiana Corporation,)

Plaintiff,)

v.)

GLORY, LTD., a Japanese Corporation,)
GLORY SHOJI CO., INC., a Japanese)
Corporation and GLORY (U.S.A.), INC.,)
a California Corporation,)

Defendants.)

No. 02 C 7008

Judge Ronald A. Guzmán

MEMORANDUM OPINION AND ORDER

Plaintiff Cummins-Allison Corp. ("Cummins") has sued Glory, Ltd., Glory Shoji Co., Inc. and Glory (U.S.A.), Inc. (collectively, "Glory") for infringement of U.S. Patent No. 6,459,806 ("the '806 patent"). Before the Court is Glory's motion for summary judgment pursuant to Federal Rule of Civil Procedure 56(c). For the reasons set forth below, the motion is granted in part and denied in part.

The Legal Standard

Summary judgment is proper where "the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law." FED. R. CIV. P. 56(c). When deciding a motion for summary judgment, evidence is viewed in the light most favorable to the nonmoving party and all justifiable

inferences are drawn in the nonmoving party's favor. *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 255 (1986). If no genuine issue of material fact is present and the moving party is entitled to judgment as a matter of law, "[s]ummary judgment is as appropriate in a patent case as it is in any other case." *C.R. Bard, Inc. v. Advanced Cardiovascular Sys., Inc.*, 911 F.2d 670, 672 (Fed. Cir. 1990).

Factual Background¹

Cummins is an Indiana corporation that designs and manufactures currency processing devices. Cummins is the holder of a number of patents on methods and devices related to currency processing, including the '806 patent. The '806 patent, which has a total of 133 claims, generally claims a method and apparatus for receiving a stack of currency bills, identifying their denominations and counting them.

Defendant Glory Ltd. is a Japanese corporation that also manufactures currency processing devices. Defendant Glory Shoji is a Japanese subsidiary of Glory Ltd., which ships its parent's products to defendant Glory (U.S.A.), Inc., which sells the products in the United States. Among the products defendants manufacture and sell are Glory models GFR-S60, GFR-S80 and GFR-S90, GFR-110 (collectively, "the Glory machines") and the GFR-120.

Plaintiff contends that the Glory machines infringe independent claims 1, 16, 21, 30, 40, 49, 76, 82, 91, 101, 112 and 125 as well as dependent claims 2-15, 17-20, 22-29, 31-39, 41-48,

¹The facts of this case are set forth in great detail in Magistrate Judge Schenkier's Report and Recommendation dated February 10, 2003 and this Court's Memorandum Opinion and Order dated September 23, 2003 adopting the Report and Recommendation and will not be repeated here.

50-58, 77-81, 83-90, 92-100, 103, 105, 108-11, 113-14, 116-18, 120, 123-24, 126, 129 and 133 of the '806 patent either literally or under the doctrine of equivalents. (Pl.'s LR 56.1(b)(3)(B) Stmt. ¶ 1.)² Glory argues that if the claims of the patent are properly construed, its machines do not infringe under either theory.

The '806 patent issued on October 1, 2002. On the same day, Cummins filed this complaint and a motion for a preliminary injunction. We referred the preliminary injunction motion to Magistrate Judge Schenkier for a Report and Recommendation ("R&R"). Following the parties' lead, in his preliminary injunction opinion the Magistrate Judge analyzed only independent claims 40, 76, 101 and dependent claims 41-43, 46-48, 77-78, 81, 105, 108 and 110-11. (2/10/03 R&R at 2.) Ultimately, Magistrate Judge Schenkier recommended that the motion for preliminary injunction be denied, a recommendation that this Court adopted. (*Id.* at 94; 9/23/03 Mem. Op. & Order at 1 ("PI Order").)

Glory now moves for summary judgment solely on the issue of infringement.

Discussion

Glory GFR-120

Cummins' infringement claims as to Glory's GFR-120 machine can be easily dispatched. According to the patent statute, Glory is guilty of infringement only if it "makes, uses, offers to sell, or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent therefor." 35 U.S.C. § 271(a). There is no dispute that the GFR-120 has never been sold or offered for sale in the United States. (*See*

²Cummins does not assert infringement of independent claims 59, 66, 132 or the related dependent claims. (Pl.'s LR 56.1(b)(3)(B) Stmt. ¶ 1.)

Manuel Nelson Decl. Supp. Mot. Partial Summ. J. '806 Patent (hereafter, "Nelson Decl."), Ex. 10, Henry Mouri Dep. at 58; Pl.'s LR 56.1(b)(3)(A) Stmt. ¶ 5.) Glory's motion for summary judgment of noninfringement as to the GFR-120 is, therefore, granted.

Remaining Glory Machines - Claim Construction

An analysis of patent infringement involves two steps. First, as a matter of law, the Court determines the scope and meaning of the claims at issue. *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1454 (Fed. Cir. 1998) (en banc). Second, the construed claims are compared with the accused product. *Id.* An accused device infringes if it meets each claim limitation, either literally or under the doctrine of equivalents. *Dynacore Holdings Corp. v. U.S. Philips Corp.*, 363 F.3d 1263, 1273 (Fed. Cir. 2004).

To determine the meaning of disputed claim language, the Court begins with an examination of the intrinsic evidence, which consists of the claims, the specification, and prosecution history. *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). Extrinsic evidence may be used only if the intrinsic evidence alone "is insufficient to enable the court to determine the meaning of the asserted claims." *Id.*

In addition to the specification and prosecution history, terms used in disputed claims must be interpreted in reference to the other claims present in the patent. *Southwall Techs. v. Cardinal IG Co.*, 54 F.3d 1570, 1579 (Fed. Cir. 1995). When the same phrase appears in different claims, the interpretation of that phrase should be consistent. *Id.* Conversely, when different words or phrases are used, the doctrine of claim differentiation creates a presumption that there is a difference in the meaning and scope of those claims. *Comark Communications. v.*

Harris Corp., 156 F.3d 1182, 1187 (Fed. Cir. 1998). This presumption is strongest where “the limitation that is sought to be ‘read into’ an independent claim already appears in a dependent claim.” *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 910 (Fed. Cir.), *cert. denied*, 125 S. Ct. 316 (2004). This presumption does not, however, allow a claim to be broadened beyond its correct scope. *Toro Co. v. White Consol. Indus., Inc.*, 199 F.3d 1295, 1302 (Fed. Cir. 1999).

The words used in a claim are generally given their ordinary meaning to one skilled in the relevant art. *Id.* at 1299. The ordinary meaning may be established using a dictionary, so long as the definition is not contrary to any definition found within the patent documents. *CCS Fitness v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002). The ordinary meaning of a claim may be restricted, however, by specific limiting language found within the intrinsic evidence. *Id.* at 1366-67 (noting at least four instances where the intrinsic evidence limits ordinary meaning).

For the purposes of the preliminary injunction motion, the Court interpreted independent claims 40, 76, and 101 of the ‘806 patent as limited to “a single-pocket, non-continuously operating machine that uses master correlation patterns to denominate a plurality of bills.” (PI Order at 19.) Glory contends that those limitations are common to all of the independent claims of the patent. Thus, in Glory’s view, the Court’s preliminary claim construction applies to all of the claims of the ‘806 patent.

As the Federal Circuit has recognized, however, courts faced with preliminary injunction motions must “constru[c] highly technical claim language on an expedited basis.” *Oakley, Inc. v. Sunglass Hut Int’l*, 316 F.3d 1331, 1345 n.3 (Fed. Cir. 2003) (citation omitted). Accordingly, though claim constructions used at the preliminary injunction stage may provide a useful starting point, those constructions are not binding. *Sofamor Danek Group, Inc. v. DePuy-Motech, Inc.*,

74 F.3d 1216, 1221 (Fed. Cir. 1996) (stating that trial judge need not “conclusively interpret claims at an early stage in a case” but can “exercise its discretion to interpret the claims at a time when the parties have presented a full picture of the claimed invention and prior art”).

The utility of the preliminary claim construction in this case is further limited by the fact that the injunction motion addressed only a fraction of the 103 claims that Cummins now asserts against Glory. (See 2/10/03 R&R at 2 (noting that Cummins’ motion “focuse[d] on” independent claims 40, 76, 101 and dependent claims 41-43, 46-48, 77-78, 81, 105, 108 and 110-111 of the ‘806 patent).) Thus, though the claim construction from the preliminary injunction proceeding is relevant to this motion, it does not control the outcome.

Automatically Denominating

Much of the dispute in this case centers on the interpretation of the phrase “automatically denominating.” That phrase appears in all of the independent claims plaintiff asserts against Glory. (See Nelson Decl., Ex. 1, ‘806 Patent, Claims 1, 16, 21, 30, 40, 49, 76, 82, 91, 101, 112, 125.) Claim 1, set forth below, is illustrative:

A method of processing currency bills using a U.S. currency evaluation device comprising: . . .

receiving a stack of bills to be evaluated in an input receptacle of the device,

transporting the bills, one at a time, from the input receptacle along a transport path,

automatically denominating bills of a plurality of U.S. denominations,

delivering bills which have been evaluated to an output region comprising one and only one stacker wheel containing output receptacle.

(*Id.*, Claim 1, Col. 30, ll. 34-44) (emphasis added).

Glory contends that the phrase “automatically denominating” must be interpreted as a “step-plus-function” limitation as set forth in 35 U.S.C. § 112 ¶ 6:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

The phrase “steps for” creates a presumption that the recited steps are in step-plus-function form. *Masco Corp. v. United States*, 303 F.3d 1316, 1326 (Fed. Cir. 2002). A claim that does not contain the “steps for” signal is not construed as a step-plus-function limitation unless the “limitation contains no act.” *Id.* at 1327. If a claim is subject to a step-plus-function limitation, the Court must “look[] to the specification for acts corresponding to the step-plus-function element [that] are necessary to perform the recited function.” *Micro Chem., Inc. v. Great Plains Chem. Co., Inc.* 194 F.3d 1250, 1259 (Fed. Cir. 1999).

Claims 40, 76 and 101, the independent claims at issue in the preliminary injunction proceeding, do not contain the “steps for” signal. (See Nelson Decl., Ex. 1, ‘806 Patent, Claims 40, 76, 101.) Nonetheless, as Glory points out, because those claims contain the “automatically denominating” function without reciting any acts in support of it, we held that those claims must be interpreted pursuant to 35 U.S.C. § 112 ¶ 6. (See PI Order at 17.) In Glory’s view, the Court should extend that construction to every claim in which the phrase “automatically denominating” appears and hold that the acts necessary to perform that function are: (1) scanning standard bills of known denominations to generate master characteristic patterns; (2) scanning unknown bills to obtain a reflected light pattern proportional to the intensity of light from the scanned bills; (3) using a correlation algorithm that requires calculating average values, variances, and normalized values to correlate the reflected light pattern from the scanned bill with the master characteristic

patterns; (4) decelerating the transport mechanism upon identification of a no-call bill; and (5) stopping the transport mechanism after scanning the bill following a no-call bill. (Defs.' Mem. Supp. Mot. Partial Summ. J. '806 Patent at 14-15.)

Glory's argument, however, ignores the fact that two of the independent claims that were not at issue in the preliminary injunction proceeding, but are at issue now, recite acts in support of the "automatically denominating" function. Claim 112, for example, recites:

A method of processing currency bills using a high-speed U.S. currency evaluation device comprising: . . .

automatically denominating bills of a plurality of U.S. denominations at a rate in excess of 800 bills per minute, the bills being denominated having images associated therewith corresponding to the plurality of denominations, **wherein the denominating comprises** scanning passing bills using a detector and generating image signals and determining the denomination of the bills based on the image signals.

(Nelson, Decl., Ex. 1, '806 Patent, Claim 112, Col. 39, ll. 17-18, 26-33) (emphasis added).

Similarly, claim 125 recites:

A method of processing currency bills using a U.S. currency evaluation device comprising: . . .

automatically denominating bills of a plurality of U.S. denominations . . . **wherein the denominating comprises** scanning passing bills using a detector and generating image signals and determining the denomination of the U.S. bills based on the image signals associated with only the green side of bills.

(*Id.*, Claim 125, Col. 40, ll. 9-10, 19-29) (emphasis added). In addition, Cummins now asserts numerous dependent claims against Glory's machines that recite additional acts in support of "automatically denominating" or "denominating." (*See id.*, Claims 4, 10-11, 15, 18-19, 26-27, 29, 35-36, 39, 44-45, 48, 51-52, 55-56, 61-62, 65, 70-71, 75, 79-81, 86-87, 96-97, 100, 109, 111, 124.) For example, in claim 4, Cummins claims:

The method of claim 1 **wherein automatically denominating comprises** detecting light reflected off passing bills, generating a reflected light characteristic information output signal in response to detected characteristic information, and generating a denomination signal in response to the reflected light characteristic information output signal.

(*Id.*, Claim 4, Col. 30, ll. 51-56) (emphasis added). Though none of this additional language was analyzed during the preliminary injunction proceeding, Glory makes no attempt to reconcile the language with the preliminary injunction construction of “automatically denominating” that it espouses.

Cummins contends that Glory’s view is wrong on all fronts. First, it argues that “automatically denominating” should not be construed as a step-plus-function limitation because it recites a function rather than an act. (Pl.’s Mem. Opp’n Defs.’ Mot. Partial Summ. J. ‘806 Patent at 53); *see Seal-Flex, Inc. v. Athletic Track & Court Constr.*, 172 F.3d 836, 849-50 (Fed. Cir. 1999) (Rader, J., concurring) (stating that the “function” of claim element corresponds to what the element ultimately accomplishes while “acts” correspond to how the function is accomplished). Second, even if it does recite a function, Cummins says that these claims explicitly recite “acts in support thereof,” which takes the limitation out of the scope of § 112 ¶ 6. *See TurboCare Div. of Demag Delaval Turbomachinery Corp. v. Gen. Elec.*, 264 F.3d 1111, 1120-21 (Fed. Cir. 2001) (explaining that “where a claim recites a function, but then goes on to elaborate sufficient structure, material, or acts within the claim itself to perform entirely the recited function, the claim is not in means-plus-function format”) (citation omitted). Finally, Cummins contends that even if the “automatically denominating” term is a step-plus-function limitation, Glory overstates the acts that are required to perform that function. (Pl.’s Mem. Opp’n Defs.’ Mot. Partial Summ. J. ‘806 Patent at 59.)

The Court finds Cummins' argument persuasive. None of the claims at issue contain the phrase "steps for," creating a presumption that the claim should not be interpreted under § 112 ¶ 6, unless the claim plainly fails to recite an act. *See Masco Corp.* at 1327 (noting "[w]here the claim drafter has not signaled his intent to invoke § 112, paragraph 6 by using the 'steps for' language, we are unwilling to resort to that provision to constrain the scope of coverage of a claim limitation without a showing that the limitation contains nothing that can be construed as an act.") In this case, independent claims 112 and 125 explicitly recite acts related to denominating. (*See Nelson Decl., Ex. 1, '806 Patent, Claim 112, Col. 39, ll. 16-33, Claim 125, Col. 40, ll. 9-29.*) Claim 112, for example, recites, "[a] method of processing currency bills . . . comprising . . . automatically denominating bills . . . wherein the denominating comprises scanning passing bills using a detector and generating image signals and determining the denomination of the bills based on the image signals." (*Id.*, Col. 39, ll. 16-33.) The acts of "scanning passing bills," "generating image signals" and "determining the denomination of the bills" remove the phrase "automatically denominating" from the scope of § 112 ¶ 6. (*Id.*); *see TurboCare*, 264 F.3d at 1120-21. Glory makes no attempt to explain the inconsistency between its proposed interpretation of "automatically denominating" and the language in claims 112 and 125 that describe the automatically denominating function. Accordingly, the Court construes the phrase as falling outside the scope of 35 U.S.C. § 112 ¶ 6, and declines to read in the limitations proposed by Glory.

Even if "automatically denominating" is not a step-plus-function limitation, Glory says the phrase must still be interpreted to require the device (1) to identify "unknown bills . . . using the correlation procedure" described in the patent and (2) "stop[] . . . when a no-call bill is identified" because the specification so requires. (Defs.' Mem. Supp. Mot. Partial Summ. J. '806

Patent at 16.) Though proper claim construction includes an examination of the patent specification, “[t]he appropriate starting point . . . is always with the language of the asserted claim itself.” *Comark Communications, Inc.*, 156 F.3d at 1186. The specification may shed light on the meaning of the terms recited in a claim, but “the resulting claim interpretation must, in the end, accord with the words chosen by the patentee to stake out the boundary of the claimed property.” *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1248 (Fed. Cir. 1998). As with the step-plus-function limitation, Glory does not explain how to reconcile its specification-based construction with the explicit language in the claims concerning “automatically denominating.”

Interpreting “automatically denominating” in all claims to require bills to be identified according to the correlation procedure set forth in the patent is problematic. First, a number of dependent claims, like claim 4, contain limitations on “automatically denominating” and “denominating.” (See Nelson Decl., Ex. 1, ‘806 Patent, Claim 4, Col. 30, ll. 51-56 (stating that automatically denominating “comprises detecting light reflected off passing bills, generating a reflected light characteristic information output signal in response to detected characteristic information, and generating a denomination signal in response to the reflected light characteristic information output signal”).) According to the doctrine of claim differentiation, the limitations on “automatically denominating” that appear in claim 4, the dependent claim, should not be ‘read into’ claim 1, the claim on which it depends. *Liebel-Flarsheim Co.*, 358 F.3d at 910. Moreover, as Cummins notes, reading additional limitations into the independent claims would make them narrower than the dependent claims that define “automatically denominating” broadly, an interpretation that would violate the patent statute. (Pl.’s Mem. Opp’n Defs.’ Mot. Partial Summ. J. ‘806 Patent at 63); see 35 U.S.C. § 112 ¶ 4 (“[A] claim in dependent form shall

contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.”).

Interpreting “automatically denominating” as requiring the device to slow and stop when a no-call bill is identified creates similar problems. As discussed in the following section, some of the claims that contain the phrase cannot be limited to a single output pocket and transport path. If the claims extend to an embodiment with two paths and pockets, one path and pocket for denominated bills and another path and pocket for no-call bills, the patented device would not have to decelerate and stop to perform the automatic denomination function, as Glory contends.

Glory argues that “automatically denominating” must include slowing and stopping because plaintiff made that representation to the PTO. Glory points to an affidavit plaintiff submitted to the PTO to overcome an obviousness rejection of various claims of U.S. Patent No. 5,692,067 (“the ‘067 patent”), an ancestor of the ‘806 patent. In that affidavit, plaintiff partially attributes the commercial success of its JetScan currency discriminators, which are covered by the ‘067 patent and perform the automatic denomination function, to the fact that “the operation of the device is suspended” when “the discriminator is unable to determine the denomination of a bill.” (Nelson Decl., Ex. 5, Prosecution History ‘067 Patent at GL047382.) Having told the PTO that the automatic discrimination includes stopping when a no-call bill is identified, Glory says plaintiff must live with that representation.

Read in context, however, it is clear that the JetScan is just one embodiment of the invention disclosed by the ‘067 patent. Earlier in that affidavit, plaintiff said that there had been a long-felt need for “a small, light weight, affordable currency discriminator,” which the JetScan fulfilled: **“The single pocket embodiment of the present invention** contributes to a

device that can denominate bills and yet is compact, light weight, and more affordable.” (*Id.* at GL047379-80) (emphasis added).

The fact that the JetScan, which stops on no-call bills, is just one embodiment of the invention is also illustrated by the claims of the patent itself. Claim 1 of the ‘067 patent recites:

A currency evaluation device for receiving a stack of currency bills and rapidly evaluating all the bills in the stack, said device comprising:

an input receptacle for receiving a stack of bills to be evaluated;

a single output receptacle for receiving said bills after said bills have been evaluated;

a transport mechanism for transporting said bills, one at a time, from said input receptacle to said output receptacle along a transport path;

a discriminating unit for evaluating said bills, said discriminating unit including a detector positioned along said transport path between said input receptacle and said output receptacle, said discriminating unit counting and determining the denomination of said bills; and

means for flagging a bill when the denomination of said bill is not determined by said discriminating unit.

(*Id.*, ‘067 Patent, Claim 1, Col. 30 ll. 11-27 at GL047180.) Claim 2, which is dependent on Claim 1, claims: “The currency evaluation device of claim 1 wherein said means for flagging causes said transport mechanism to halt with said bill whose denomination has not been determined being the last bill transported to said output receptacle.” (*Id.*, Claim 2, Col. 30, ll. 28-31 at GL047180.) As discussed above, under the doctrine of claim differentiation, the presence of the halting limitation in dependent claim 2 creates the presumption that the limitation is not present in claim 1. *Liebel-Flarsheim Co.*, 358 F.3d at 910. Because claim 2 recites an embodiment that stops on no-calls, the JetScan embodiment, claim 1 is presumed to recite an embodiment that is not so limited, *i.e.* does not stop on no-calls. Because Glory has not

rebutted that presumption, plaintiff's statement to the PTO about the JetScan's halting feature cannot be extended to claims and embodiments that do not contain the halting limitation.

In short, the Court holds that "automatically denominating" is not a step-plus-function limitation and does not require that the claimed device identify unknown bills using the correlation procedure described in the patent or decelerate and stop when a no-call bill is identified.

Now that we know what "automatically denominating" does not mean, we must determine what it does mean. Cummins contends that the phrase means determining the denomination of bills by any method known to those skilled in the art at the time the '806 patent application was filed. (Pl.'s Mem. Opp'n Defs.' Mot. Partial Summ. '806 Patent at 61-62.)

Construing the phrase so broadly, Glory asserts, creates validity problems. To be valid, a patent must have a specification that:

contain[s] a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and . . . set[s] forth the best mode contemplated by the inventor of carrying out his invention.

35 U.S.C. § 112 ¶ 1. If "automatically denominating" is construed to mean determining the denomination in any recognized manner, Glory says the specification does not comply with the enablement requirement.

"To be enabling, the specification of the patent must teach those skilled in the art how to make and use the full scope of the claimed invention without undue experimentation." *Plant Genetic Sys., N.V. v. DeKalb Genetics Corp.*, 315 F.3d 1335, 1339 (Fed. Cir. 2003) (citation omitted).

That is not to say that the specification itself must necessarily describe how to make and use every possible variant of the claimed invention, for the artisan's knowledge of the prior art and routine experimentation can often fill gaps, interpolate between embodiments, and perhaps even extrapolate beyond the disclosed embodiments, depending upon the predictability of the art. But it does mean that, when a range is claimed, there must be reasonable enablement of the scope of the range.

AK Steel Corp. v. Sollac & Ugine, 344 F.3d 1234, 1244 (Fed. Cir. 2003) (citations omitted).

Glory argues that the '806 patent enables only a device that denominates according to the correlation procedure disclosed in the patent. The Court disagrees. Though the specification says little about alternate denomination methods, the record establishes that such methods were well known to those skilled in the art of designing currency processing devices in December 1999, when the application for the '806 patent was filed. There is no dispute that currency denominating devices existed in December 1999. (*See, e.g.* Nelson Decl., Ex. 8, U.S. Patent No. 4,179,685 ("O'Maley Patent"), Col. 2, ll. 3-5 (disclosing "an automatic currency identifying system"); *id.*, Ex. 5, Prosecution History '067 Patent at GL047392 (statement by plaintiff to PTO that De La Rue had been selling multipocket discriminators since 1980); *id.* (statement by plaintiff to PTO that Glory "was . . . offering a multipocket discriminator in 1986"); Anderson Decl., Ex. T, David Munson Decl. ¶ 14 (stating that "[a]utomatic currency identification systems have existed for decades").) Moreover, Glory's own expert David Munson opines that various correlation algorithms for currency discrimination were known to and understood by those skilled in the art well before 1999. (*Id.*, Ex. V, Munson Report at 5-6.) Given this evidence, the Court concludes that the specification of the '806 patent sufficiently enables a device that denominates according to methods other than the correlation procedure disclosed in the patent.

In sum, the Court construes the phrase "automatically denominating" to mean automatically determining the denomination of bills by any method known to those skilled in the

art at the time the '806 patent application was filed. *See Chiron Corp. v. Genentech, Inc.*, 363 F.3d 1247, 1254 (Fed. Cir. 2004) (stating that “a patent document cannot enable technology that arises after the date of application”), *cert. denied*, 125 S. Ct. 870 (2005).

Currency Evaluation Device & Transport Path

The two remaining phrases that we must construe are “a . . . currency evaluation device” and “a transport path.” Both phrases appear in all independent claims at issue. (*See* Nelson Decl., Ex. 1, '806 Patent, Claims 1, 16, 21, 30, 40, 49, 76, 82, 91, 101, 112, 125.) Glory says that the intrinsic evidence demonstrates that the phrase “a . . . currency evaluation device” refers to a device with a only one output pocket. (Defs.' Mem. Supp. Mot. Partial Summ. J. '806 Patent at 18). Under Glory's proposed construction, the patented device receives a stack of bills in a single input bin and transports them along a single transport path to a single output pocket. (*Id.* at 21.)

Again, the Court begins its construction of this phrase not with the specification or prosecution history, but with the language of the claims themselves. *See Comark Communications* at 1186. Independent claims 1, 66 and 76 specify that bills are delivered to “one and only one” output receptacle after being “evaluated.” (Nelson Decl., Ex. 1, '806 Patent, Claim 1, Col. 30, ll. 34-44, Claim 66, Col. 35, ll. 54-67, Claim 76, Col. 36, ll. 40-51.) Similarly, independent claims 16, 82 and 91 state that bills are delivered to “one and only one output receptacle” after being “denominated.” (*Id.*, Claim 16, Col. 31, ll. 35-45, Claim 82, Col. 37, ll. 11-22, Claim 91, Col. 37, ll. 55-65.)

The rest of the independent claims do not contain the “one and only one” output receptacle limitation. (*See id.*, Claims 21, 30, 40, 49, 101, 112, 125.) Moreover, Cummins

argues that the language of dependent claims 103, 113 and 126 establishes that the limitation cannot be imported into the claims on which they depend, independent claims 101, 112 and 125.

The Court agrees. Dependent claims 103, 113 and 126 each contain the limitation of “at least one output receptacle.” (*See id.*, Claim 103, Col. 38, ll. 54-55, Claim 113, Col. 39, ll. 34-35, Claim 126, Col. 40, ll. 30-31.) As noted above, dependent claims should be no broader in scope than the independent claims upon which they depend. *See* 35 U.S.C. § 112 ¶ 4; *AK Steel Corp.*, 344 F.3d at 1242 (“Under the doctrine of claim differentiation, dependent claims are presumed to be of narrower scope than the independent claims from which they depend.”). If we were to interpret claims 101, 112 and 125 as requiring only one output pocket, then those independent claims would be narrower in scope than claims 103, 113 and 126, a violation of that basic tenet of claim construction. Thus, the phrase “a currency . . . evaluation device,” as it is used in claims 101, 112 and 125, cannot be limited to a device with only one output pocket.

Moreover, because the phrase “a . . . currency evaluation device,” as it is used in independent claims 101, 112 and 125, cannot be interpreted to limit the device to a single output pocket, it should not be interpreted to do so in the remaining independent claims either. *See Southwall Techs.*, 54 F.3d at 1579 (stating that identical phrases should be interpreted consistently among patent claims).

Glory contends that interpreting the claims as contemplating more than one output pocket conflicts with the prosecution histories of the ‘806 and related patents. Glory says that plaintiff distinguished its invention from the prior art O’Maley and Jones devices, at least in part, on the basis that plaintiff’s device has only one output receptacle.

Glory’s view, which is echoed in both the Magistrate Judge’s and this Court’s preliminary claims construction, is an over-simplification of the prosecution history. Plaintiff

did not distinguish its invention as whole from those prior art references. Rather, it distinguished various of its proposed claims. For example, plaintiff distinguished proposed claim 238, which recited the “one and only one . . . output receptacle” limitation, (*see* Nelson Decl., Ex. 7, Prosecution History ‘806 Patent at GL046686) on the grounds that it contained the limitations of “automatically denominating bills” and “delivering bills which have been evaluated to an output region comprising one and only one . . . output receptacle.” (*Id.* at GL046721.) The fact that plaintiff distinguished a claim that contained the limitation of a single output pocket from the prior art on the grounds that it recited that limitation sheds no light on whether claims that do not recite that limitation should be construed as containing it.

Glory’s reading of the prosecution histories of the ‘067 patent and U.S. Patent No. 6,028,951 (“the ‘951 patent”), from which the ‘806 patent descended, is similarly flawed. In the application process for the ‘067 patent, plaintiff urged the patent examiner to withdraw its rejection of various claims as obvious in view of the O’Maley and other prior art devices because the device plaintiff claimed had only a single output pocket: “[C]laims 34-45, 86-90, and 97-113 are distinguishable because they contain the limitations of a single output receptacle and a discriminating unit. O’Maley teaches the use of at least two output receptacles” (*Id.*, Ex. 5, Prosecution History ‘067 Patent at GL047388; *see id.* at GL07392 (“[T]he references cited by the examiner (O’Maley and Jones) coexisted since 1979. That is over a decade . . . before the Applicants filed their application disclosing a single output pocket discriminator.”); *id.* (“De La Rue was also offering a multipocket discriminator in 1980.”).) Because the ‘067 patent is related to the ‘806 patent and they share a common specification, Glory says these admissions by plaintiff apply equally to the claims of the ‘806 patent.

Once again, however, Glory's argument ignores the context in which plaintiff's comments were made. Plaintiff made those statements to persuade the examiner to withdraw his obviousness rejections to claims 34-45, 86-90, and 97-113 of the application, all of which contain the express limitation of a single output pocket. (*See id.* at GL047304-07, GL047343-44, GL047349-51.) Thus, plaintiff's comments to the PTO shed no light on the proper scope of the claims of the '806 patent that do not contain that express limitation.

Glory's reliance on the prosecution history of the '951 patent is equally misplaced. Initially, the PTO rejected proposed claims 28-47 of the '951 patent application as unpatentable in view of the Jones and O'Maley prior art devices. (*Id.*, Ex. 6, '951 Patent Prosecution History at GL047028.) Plaintiff took issue with that rejection, saying:

This rejection requires impermissible hindsight. The Applicants' machine is able to determine the denomination of bills, to detect counterfeit bills, and to flag the presence of a counterfeit bill. Jones et al. describes a counting device which contains means for detection of counterfeit bills, but is not able to determine the denomination of the bills which it is counting. It does have the capability of stopping the machine if a suspect note is detected. O'Maley describes a device which can determine the denomination of bills, but instead of flagging suspect bills, it diverts them to a separate output bin. O'Maley does not provide for stopping the machine in order to retrieve a suspect bill. Thus, the Applicants' machine is not a combination of O'Maley and Jones et al., because it does not contain all of their features. The Examiner selected only one feature from O'Maley to combine with Jones et al. A combination of the machines of O'Maley and Jones et al. would detect counterfeit bills and determine their denomination, as the Applicants' machine does. **However, it would stop when a suspect bill was detected and also divert it to a separate bin. The Applicants' machine does not do that**, and therefore, it is clear that it was necessary to select one feature from O'Maley and ignore others in order to make the rejection.

(*Id.* at GL047028-29) (emphasis added). Once again, however, each of the claims to which that discussion relates contains the limitation of "a single output receptacle." (*See id.* at GL046980-84.) Thus, that statement has no relevance to the '806 patent claims that do not contain the single output pocket limitation.

Glory has no more success with its proposed interpretation of the phrase “a transport path.” In its view, the use of the article “a” in the phrase “a transport path” refers to a singular path. This interpretation has been repeatedly rejected by the Federal Circuit: “This court has consistently emphasized that the indefinite articles ‘a’ or ‘an,’ when used in a patent claim, mean ‘one or more’ in claims containing open-ended transitional phrases such as ‘comprising,’ Under this conventional rule, the claim limitation ‘a,’ without more, requires *at least one*.” *Crystal Semiconductor Corp. v. TriTech Microelectronics Int’l. Inc.*, 246 F.3d 1336, 1347 (Fed. Cir. 2001) (citations omitted) (emphasis in original).

Glory also argues that the “same intrinsic evidence demonstrating that the claimed invention only has one output pocket necessarily also demonstrates that the transport path comprises only one path leading to the single output pocket.” (Defs.’ Mem. Supp. Mot. Partial Summ. J. ‘806 Patent at 20.) For the reasons previously discussed, however, the independent claims that do not recite an output receptacle limitation cannot be limited to a single output pocket and, therefore, are not limited by the phrase “a transport path” to a single transport path.

In sum, the Court rejects Glory’s proposed construction of “a . . . currency evaluation device” and “a transport path” and holds that those phrases do not limit the claims to a device that contains only one output pocket and one transport path.

Infringement

Having construed the claim limitations, we must now determine whether Glory’s products infringe the claims of the ‘806 patent either literally or under the doctrine of equivalents. Glory is guilty of literal infringement if its machines contain every limitation of the asserted claims. *Kraft Foods, Inc. v. Int’l Trading Co.*, 203 F.3d 1362, 1370 (Fed. Cir. 2000).

Given the Court's construction of the claims, Glory's machines literally infringe only if they have one or more transport paths and output pockets and automatically determine the denomination of bills by a method known to those skilled in the art in December 1999.

Glory admits that its machines have at least one output pocket and transport path. (*See* Shoji Tomiya Decl. Supp. Mot. Partial Summ. J. '806 Patent (hereafter, "Tomiya Decl.") ¶¶ 4, 21, 37 (stating that the accused machines have one transport path and output pocket for bills that have been identified as known denominations and a second transport path and output pocket for no-call bills).) In addition, there is no dispute that the Glory machines "automatically denominate." (*See id.* ¶ 4; Anderson Decl., Ex. A, John DiBlasio Decl. Supp. Mem. Opp'n Defs.' Mot. Partial Summ. J. '806 Patent (hereafter, "DiBlasio Decl.") ¶ 30; *id.*, Ex. B, Robert Stevenson Decl. Supp. Mem. Opp'n Defs.' Mot. Partial Summ. J. '806 Patent (hereafter, "Stevenson Decl.") ¶ 86.) It is not clear from the record, however, whether the method by which the Glory machines "automatically denominate," (*see generally* Tomiya Decl.), was known to those skilled in the art in 1999. Absent such evidence, we cannot say that Glory's machines literally infringe the claims of the '806 patent.

Glory, however, may still infringe under the doctrine of equivalents, even if its alleged equivalent did not exist at the time the '806 patent application was filed. *See Lockheed Aircraft Corp. v. United States*, 553 F.2d 69, 84 (Ct. Cl. 1977) ("It has long been settled that infringement is not avoided by an equivalent that was not known at the time of the invention."). Consequently, regardless of its age, Glory's denomination method infringes the '806 patent if it is equivalent to a denomination method known to artisans in this field in December 1999.

One denomination method, of course, is that used by the preferred embodiment of the '806 patent. In the preferred embodiment, currency is denominated by scanning unknown bills,

digitizing the reflected light signals obtained from that process, normalizing that data by using a specific algorithm and comparing that data to master characteristic patterns of genuine bills of known denominations that were generated by the same process and are stored in the memory of the device. (Nelson Decl., Ex. 1, '806 patent, Col. 6, l. 6-Col. 14, l. 34.) Cummins contends that this process and that used by the Glory machines are equivalent. (See Anderson Decl. Ex. A, DiBlasio Decl. ¶¶ 41-49, 58-60 & *id.*, Ex. B, Stevenson Decl. ¶¶ 43, 75, 88.) Glory, of course, disagrees. (See Tomiya Decl. ¶¶ 41-46.)

Glory's process is equivalent to that set forth in the preferred embodiment if it performs substantially the same function, in substantially the same way to obtain substantially the same result. *Kraft Foods, Inc.*, 203 F.3d at 1371. Glory says that its machines: do not scan genuine bills to obtain master characteristic patterns, store those patterns in memory, or use a correlation algorithm to compare reflected light patterns from unknown bills with the stored patterns, as does the preferred embodiment. (Tomiya Decl. ¶¶ 41-48.) Rather, Glory says, its machines scan unknown bills, retrieve data from them and apply that data to a series of formulas stored in the memory of each machine, the results of which determine the denomination of the bill. (*Id.* ¶¶ 23-36, 43-48.)

But, as plaintiff notes, and Glory's documents confirm, the formulas the Glory machines use to determine denominations are derived from data Glory obtains from scanning genuine bills. (See Anderson Decl., Ex. J, GL003244 (Glory document stating that the formulas it uses to determine denominations are derived from data "retrieved by running 50 [genuine] notes" of each denomination").) Thus, plaintiff says, the Glory machines store master patterns, *i.e.* the formulas, just like the preferred embodiment.

But plaintiff's argument equates the data Glory uses to create the formulas with the formulas themselves. The data consists of signals of light reflected from genuine bills. (*Id.*) The formulas are derived from those signals, but it is the formulas, not the signals, that are stored in the memory of Glory's machines. (*Id.*; Tomiya Decl. ¶¶ 33, 42.)

Plaintiff says that is a distinction without a difference:

The point of both the Cummins claimed invention and the Accused Products is to manipulate raw data from genuine bills in order to put the data in a format which will allow the data to be processed quickly using a denomination algorithm. Whether you average and normalize the data or rearrange it and multiply it, the fact is that the only data actually stored in [the] Accused Products comes from scanning genuine bills – the same data which is claimed to be a master characteristic pattern in the Cummins' patents. Applying a mathematical formula to that data doesn't change the inherent nature of the data – the data stored on the Glory machines is still a master characteristic pattern as claimed and described in the '806 patent.

(Anderson Decl, Ex. B, Stevenson Decl. ¶ 41.)


It may be, as plaintiff asserts, that Glory's formulas and Cummins' master patterns are equivalent. But given the dearth of evidence about what Glory does, if anything, to the data it obtains from the genuine bill scans to generate its formulas and the conflicting testimony of the parties' experts, it is an issue we cannot decide. As the non-movant, plaintiff is entitled to have this disputed fact issue resolved in its favor. Thus, plaintiff has raised a genuine issue of material fact as to whether Glory infringes the automatically denominating element of the '806 patent under the doctrine of equivalents.

Conclusion

For all of the reasons set forth above, Glory's motion for partial summary judgment of noninfringement of the '806 patent [doc. no. 215] is granted as to Glory's GFR120 machine. In all other respects, the motion is denied.

SO ORDERED.

ENTERED: MAR 28 2005


HON. RONALD A. GUZMAN
United States District Judge